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CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to: Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450, on the below date:

Date: February 8, 2005 Name: Adam D. Airhart

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Appln. of: HISASHI YAMAMOTO ET AL.

Appln. No.: 10/762,028

Filed: January 20, 2004

For: CATALYTIC ASYMMETRIC
EPOXIDATION

Attorney Docket No: 7814/93

Examiner: Not Assigned

Art Unit: 1625

Mail Stop Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL

Sir:

Attached is/are:

- ☒ Transmittal (in dup.), Information Disclosure Statement, PTO 1449, 1 Foreign Reference, and 35 Other Art References.
- ☒ Return Receipt Postcard

Fee calculation:

- ☒ No additional fee is required.
- ☒ Small Entity.
- ☐ An extension fee in an amount of \$_____ for a _____-month extension of time under 37 C.F.R. § 1.136(a).
- ☐ A petition or processing fee in an amount of \$_____ under 37 C.F.R. § 1.17(_____).
- ☐ An additional filing fee has been calculated as shown below:

					Small Entity			Not a Small Entity	
	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Rate	Add'l Fee	or	Rate	Add'l Fee
Total		Minus			x \$25=			x \$50=	
Indep.		Minus			x 100=			x \$200=	
First Presentation of Multiple Dep. Claim					+\$180=			+\$360=	
					Total	\$		Total	\$

Fee payment:

- ☐ A check in the amount of \$_____ is enclosed.
- ☐ Please charge Deposit Account No. 23-1925 in the amount of \$_____. A copy of this Transmittal is enclosed for this purpose.
- ☐ Payment by credit card in the amount of \$_____ (Form PTO-2038 is attached).
- ☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925.

February 8, 2005
Date

Respectfully submitted,

Adam D. Airhart (Reg. No. 51,387)



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INFORMATION DISCLOSURE STATEMENT

In accordance with the duty of disclosure under 37 C.F.R. §1.56 and §§1.97-1.98, and more particularly in accordance with 37 C.F.R. §1.97(b), Applicant hereby cites the following reference(s):

No.	Date of Publication	Patentee/Applicant/Assignee
4,471,130	09/11/1984	Katsuki et al.
4,900,847	02/13/1990	Hanson et al.
6,271,400 B2	08/07/2001	Sharpless et al.

No.	Date of Publication	Country
2002-88046	03/27/2002	Japan

Other Art – Non Patent Literature Documents

Bernardi, P. et al., "A General and Convenient Procedure for the Synthesis of <i>N</i> -Alkylarylamines and <i>N</i> -Alkylheteroarylamines by Electrophilic Amination of Cuprates with <i>N</i> -Alkylhydroxylamines," <i>J. Org. Chem.</i> , 1999 , 64(2), 641-643.
Blum, S.A. et al., "Enantioselective Oxidation of Di- <i>tert</i> -Butyl Disulfide with a Vanadium Catalyst: Progress toward Mechanism Elucidation," <i>J. Org. Chem.</i> 2003 , 68(1), 150-155.
Bolm, C. and Kühn, T., "Asymmetric Epoxidation of Allylic Alcohols Using Vanadium Complexes of (<i>N</i>)-Hydroxy-[2.2]paracyclophane-4-carboxylic Amides," <i>Synlett</i> , 2000 , 6, 899-901.
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Brougham, P. et al. "Oxidation Reactions Using Magnesium Monoperphthalate: A Comparison with <i>m</i> -Chloroperoxybenzoic Acid," <i>Synthesis</i> , 1987 , 1015-16.
Cavello, L. and Jacobsen, H., "Electronic Effects in (salen)Mn-Based Epoxidation Catalysts," <i>J. Org. Chem.</i> , 2003 , 68(16), 6202-6207.
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Galsbøl, F. et al., "The Preparation, Separation, and Characterization of the lel_3 - and ob_3 -Isomers of Tris(<i>trans</i> -1,2-cyclohexanediamine)rhodium(III) Complexes," <i>Acta. Chem. Scand.</i> 1972 , 26(9), 3605-3611.
Gao, Y. et al., "Catalytic Asymmetric Epoxidation and Kinetic Resolution: Modified Procedures Including in Situ Derivatization," <i>J. Am. Chem. Soc.</i> , 1987 , 109(19), 5765-5780.
Grundke, G. et al., "Optically Active <i>N</i> -Hydroxy- α -L-Amino Acid Methyl Esters: An Improved and Simplified Synthesis," <i>Synthesis</i> , 1987 , 1115-1116.
Hajipour, A. R. and Pyne, S.G., "A Rapid and Efficient Synthesis of Oxaziridines and Diaryl Nitrones Using Oxone," <i>J. Chem. Research (S)</i> , 1992 , 388.
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Hirao, T., "Vanadium in Modern Organic Synthesis," <i>Chemical Reviews</i> , 1997 , 97(8), 2707-2724.
Hoshino, Y. et al., "Design of Optically Active Hydroxamic Acids as Ligands in Vanadium-Catalyzed Asymmetric Epoxidation," <i>Bull. Chem. Soc. Jpn.</i> , 2000 , 73, 1653-1658.
Hoshino, Y. and Yamamoto, H., "Novel α -Amino Acid-Based Hydroxamic Acid Ligands for Vanadium-Catalyzed Asymmetric Epoxidation of Allylic Alcohols," <i>J. Am. Chem. Soc.</i> , 2000 , 122(42), 10452-53.
Itoh, T. et al., "Vanadium-Catalyzed Epoxidation of Cyclic Allylic Alcohols, Stereoselectivity and Stereocontrol Mechanism," <i>Journal of the American Chemical Society</i> , 1979 , 101(1), 159-169.
Katsuki, T. and Sharpless, K.B., "The First Practical Method for Asymmetric Epoxidation," <i>J. Am. Chem. Soc.</i> , 1980 , 102(18), 5974-5976.
Khlestkin, V.K. et al., "Intramolecular Cyclization of 1,2-Bis(<i>N</i> -alkoxy- <i>N</i> -nitrosoamino)alkanes: A Unique Route to 4,5-Dihydro-1,2,3-triazole 2-Oxides," <i>Synthesis</i> , 2000 , 5, 681-690.
Larrow, J.F. et al., "A Practical Method for the Large-Scale Preparation of [<i>N,N</i> -Bis(3,5-di- <i>tert</i> -butylsalicylidene)-1,2-cyclohexanediaminato(2-)]manganese(III) Chloride, a Highly Enantioselective Epoxidation Catalyst," <i>J. Org. Chem.</i> , 1994 , 59(7), 1939-1942.
Ligtenbarg, A.G.J. et al., "Catalytic oxidations by vanadium complexes," <i>Coordination Chemistry Reviews</i> , 2003 , 237, 89-101.
Liu, G. et al., "Catalytic Asymmetric Synthesis of <i>tert</i> -Butanesulfinamide. Application to the Asymmetric Synthesis of Amines," <i>J. Am. Chem. Soc.</i> , 1997 , 119(41), 9913-9914.
Makita, N. et al., "Asymmetric Epoxidation of Homoallylic Alcohols and Application in a Concise Total Synthesis of (-)- α -Bisabolol and (-)-8- <i>epi</i> - α -Bisabolol**," <i>Angew. Chem. Int. Ed.</i> , 2003 , 42(8), 941-943.
Mazhukin, D. G. et al., "Interaction of 1,2-Bishydroxylamines with 1,2-Dicarbonyl Compounds. Isolation and Properties of 2,3-Dihydropyrazine-1,4-Dioxides," Novosibirsk Institute of Organic Chemistry, Siberian Branch, Russian Academy of Sciences, translated from <i>Khimiya Geterotsiklicheskikh Soedinenii</i> , 1993 , 4, 514-522.
Mazhukin, D. G. et al., "Organic Chemistry – Synthesis of aliphatic 1,2-bishydroxylamines from 1,3-dihydroxyimidazolidines. The crystal structure of 1,2-bishydroxylaminocycloalkanes," <i>Russian Chemical Bulletin</i> , 1993 , 42(5), 851-857.
Mazhukin, D. G. et al., "Synthesis of 1,2-bis(methoxyamino)cycloalkanes from alicyclic 1,2-bis(hydroxyamines)," <i>Russian Chemical Bulletin</i> , 1996 , 45(4), 925-929.
Mazhukin, D.G. et al., "Synthesis of Indeno[1,2- <i>b</i>]pyrazine <i>N</i> -Oxides by Reaction of Ninhydrin with 1,2-Bishydroxylamines," <i>Liebigs Ann. Chem.</i> 1994 , 983-987.
Michaelson, R. C. et al., "Chiral Hydroxamic Acids as Ligands in the Vanadium Catalyzed Asymmetric Epoxidation of Allylic Alcohols by <i>tert</i> -Butyl Hydroperoxide," <i>Journal of the American Chemical Society</i> , 1997 , 99(6), 1990-1992.
Mihelich, E.D. et al., "Vanadium-Catalyzed Epoxidations. 2. Highly Stereoselective

Epoxidations of Acyclic Homoallylic Alcohols Predicted by a Detailed Transition-State Model," <i>J. Am. Chem. Soc.</i> , 1981 , 103(25), 7690-92.
Murase, N. et al., "Chiral Vanadium-Based Catalysts for Asymmetric Epoxidation of Allylic Alcohols," <i>J. Org. Chem.</i> , 1999 , 64(2), 338-339.
Okachi, T. et al., "Catalytic Enantioselective Epoxidation of Homoallylic Alcohols by Chiral Zirconium Complexes," <i>Org. Lett.</i> , 2003 , 5(1), 85-87.
Stoner, E.J. et al., "Benzylation via Tandem Grignard Reaction – Iodontrimethylsilane (TMSI) Mediated Reduction," <i>Tetrahedron</i> , 1995 , 51(41), 11043-11062.
Tikhonov, A.Y. et al., "Synthesis and Inhibitory Effect on Platelet Aggregation and Antihypertensive Activity of 1-Hydroxy-2,5-dihydro-1 <i>H</i> -imidazole-2-carboxylic Acid 3-Oxides, 1,3-Dihydroxyimidazolidine-2-carboxylic Acids, and 1,4-Dihydroxy-2,3-piperazinediones," <i>Arch. Pharm. Pharm. Med. Chem.</i> , 1999 , 332, 305-308.
Traber, B. et al., "Chiral Hydroxamic Acids as Ligands for the Vanadium Catalyzed Asymmetric Epoxidation of Allylic Alcohols," <i>Bull Korean Chem. Soc.</i> , 2001 , 22(6), 547-548.
Wu, H.L. and Uang, B.J., "Asymmetric epoxidation of allylic alcohols catalyzed by new chiral vanadium(V) complexes," <i>Tetrahedron: Asymmetry</i> , 2002 , 13, 2625-28.

Applicant is enclosing Form PTO-1449 (four sheets), along with a copy of each listed reference for which a copy is required under 37 C.F.R. §1.98(a)(2).

In regard to JP 2002-88046 and based solely on the chemical reactions shown, this reference seems to be directed to a method for making various diaryl-methanols and hydroxylamines.

Applicant respectfully requests the Examiner's consideration of the above reference(s) and entry thereof into the record of this application.

By submitting this Statement, Applicant is attempting to fully comply with the duty of candor and good faith mandated by 37 C.F.R. §1.56. As such, this Statement is not intended to constitute an admission that any of the enclosed references, or other information referred to therein, constitutes "prior art" or is otherwise "material to patentability," as that phrase is defined in 37 C.F.R. §1.56(a).

Applicant has calculated no fee to be due in connection with the filing of this Statement. However, the Director is authorized to charge any fee deficiency associated with the filing of this Statement to a deposit account, as authorized in the Transmittal accompanying this Statement.

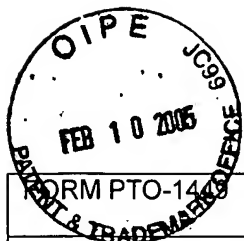
Respectfully submitted,

February 8, 2005

Date

A handwritten signature in black ink, appearing to read 'Adam D. Airhart', written over a horizontal line.

Adam D. Airhart, Reg. No. 51,387



FORM PTO-14	SERIAL NO. 10/762,028	CASE NO. 7814/93
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	FILING DATE January 20, 2004	GROUP ART UNIT 1625
(use several sheets if necessary)		APPLICANT(S): Hisashi Yamamoto et al.

REFERENCE DESIGNATION

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER <small>Number-Kind Code (if known)</small>	DATE	NAME	CLASS/ SUBCLASS	FILING DATE
	A1	4,471,130	09/11/1984	Katsuki et al.		
	A2	4,900,847	02/13/1990	Hanson et al.		
	A3	6,271,400 B2	08/07/2001	Sharpless et al.		

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER <small>Number-Kind Code (if known)</small>	DATE	COUNTRY	CLASS/ SUBCLASS	TRANSLATION YES OR NO
	A4	2002-88046	03/27/2002	Japan		

EXAMINER INITIAL	OTHER ART – NON PATENT LITERATURE DOCUMENTS <small>(Include name of author, title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city and/or country where published.)</small>					
	A5	Bernardi, P. et al., "A General and Convenient Procedure for the Synthesis of <i>N</i> -Alkylarylamines and <i>N</i> -Alkylheteroarylamines by Electrophilic Amination of Cuprates with <i>N</i> -Alkylhydroxylamines," <i>J. Org. Chem.</i> , 1999 , 64(2), 641-643.				
	A6	Blum, S.A. et al., "Enantioselective Oxidation of Di- <i>tert</i> -Butyl Disulfide with a Vanadium Catalyst: Progress toward Mechanism Elucidation," <i>J. Org. Chem.</i> 2003 , 68(1), 150-155.				
	A7	Bolm, C. and Kühn, T., "Asymmetric Epoxidation of Allylic Alcohols Using Vanadium Complexes of (<i>N</i>)-Hydroxy-[2.2]paracyclophane-4-carboxylic Amides," <i>Synlett</i> , 2000 , 6, 899-901.				
	A8	Bolm, C. and Bienewald, F., "Asymmetric Sulfide Oxidation with Vanadium Catalysts and H ₂ O ₂ **," <i>Angew. Chem. Int. Ed. Engl.</i> , 1995 , 34 (23/24), 2640-2642.				
	A9	Brougham, P. et al. "Oxidation Reactions Using Magnesium Monoperphthalate: A Comparison with <i>m</i> -Chloroperoxybenzoic Acid," <i>Synthesis</i> , 1987 , 1015-16.				
	A10	Cavello, L. and Jacobsen, H., "Electronic Effects in (salen)Mn-Based Epoxidation Catalysts," <i>J. Org. Chem.</i> , 2003 , 68(16), 6202-6207.				
	A11	Cogan, D.A. et al., "Catalytic Asymmetric Oxidation of <i>tert</i> -Butyl Disulfide. Synthesis of <i>tert</i> -Butanesulfinamides, <i>tert</i> -Butyl Sulfoxides, and <i>tert</i> -Butanesulfinimines," <i>J. Am. Chem. Soc.</i> , 1998 , 120(32), 8011-19.				
	A12	Dittmer, D.C. et al., "A Tellurium Transposition Route to Allylic Alcohols: Overcoming Some Limitations of the Sharpless-Katsuki Asymmetric Epoxidation," <i>J. Org. Chem.</i> , 1993 , 58(3), 718-731.				
	A13	Galsbøl, F. et al., "The Preparation, Separation, and Characterization of the <i>le</i> ₃ - and <i>ob</i> ₃ -Isomers of Tris(<i>trans</i> -1,2-cyclohexanediamine)rhodium(III) Complexes," <i>Acta. Chem. Scand.</i> 1972 , 26(9), 3605-3611.				
	A14	Gao, Y. et al., "Catalytic Asymmetric Epoxidation and Kinetic Resolution: Modified Procedures Including in Situ Derivatization," <i>J. Am. Chem. Soc.</i> , 1987 , 109(19), 5765-5780.				

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EXAMINER INITIAL	OTHER ART – NON PATENT LITERATURE DOCUMENTS (Include name of author, title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city and/or country where published.	
	A15	Grundke, G. et al., "Optically Active N-Hydroxy- α -L-Amino Acid Methyl Esters: An Improved and Simplified Synthesis," <i>Synthesis</i> , 1987 , 1115-1116.
	A16	Hajipour, A. R. and Pyne, S.G., "A Rapid and Efficient Synthesis of Oxaziridines and Diaryl Nitrones Using Oxone," <i>J. Chem. Research (S)</i> , 1992 , 388.
	A17	Hartung, J. and Greb, M., "Transition metal-catalyzed oxidations of bishomoallylic alcohols," <i>Journal of Organometallic Chemistry</i> 2002 , 661, 67-84.
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	A20	Hoshino, Y. and Yamamoto, H., "Novel α -Amino Acid-Based Hydroxamic Acid Ligands for Vanadium-Catalyzed Asymmetric Epoxidation of Allylic Alcohols," <i>J. Am. Chem. Soc.</i> , 2000 , 122(42), 10452-53.
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	A22	Katsuki, T. and Sharpless, K.B., "The First Practical Method for Asymmetric Epoxidation," <i>J. Am. Chem. Soc.</i> , 1980 , 102(18), 5974-5976.
	A23	Khlestkin, V.K. et al., "Intramolecular Cyclization of 1,2-Bis(N-alkoxy-N-nitrosoamino)alkanes: A Unique Route to 4,5-Dihydro-1,2,3-triazole 2-Oxides," <i>Synthesis</i> , 2000 , 5, 681-690.
	A24	Larrow, J.F. et al., "A Practical Method for the Large-Scale Preparation of [N,N-Bis(3,5-di-tert-butylsalicylidene)-1,2-cyclohexanediaminato(2-)]manganese(III) Chloride, a Highly Enantioselective Epoxidation Catalyst," <i>J. Org. Chem.</i> , 1994 , 59(7), 1939-1942.
	A25	Ligtenbarg, A.G.J. et al., "Catalytic oxidations by vanadium complexes," <i>Coordination Chemistry Reviews</i> , 2003 , 237, 89-101.
	A26	Liu, G. et al., "Catalytic Asymmetric Synthesis of tert-Butanesulfinamide. Application to the Asymmetric Synthesis of Amines," <i>J. Am. Chem. Soc.</i> , 1997 , 119(41), 9913-9914.
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	A28	Mazhukin, D. G. et al., "Interaction of 1,2-Bishydroxylamines with 1,2-Dicarbonyl Compounds. Isolation and Properties of 2,3-Dihydropyrazine-1,4-Dioxides," Novosibirsk Institute of Organic Chemistry, Siberian Branch, Russian Academy of Sciences, translated from <i>Khimiya Geterotsiklicheskikh Soedinenii</i> , 1993 , 4, 514-522.
	A29	Mazhukin, D. G. et al., "Organic Chemistry – Synthesis of aliphatic 1,2-bishydroxylamines from 1,3-dihydroxyimidazolidines. The crystal structure of 1,2-bishydroxylaminocycloalkanes," <i>Russian Chemical Bulletin</i> , 1993 , 42(5), 851-857.
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	A31	Mazhukin, D.G. et al., "Synthesis of Indeno[1,2-b]pyrazine N-Oxides by Reaction of Ninhydrin with 1,2-Bishydroxylamines," <i>Liebigs Ann. Chem.</i> 1994 , 983-987.
	A32	Michaelson, R. C. et al., "Chiral Hydroxamic Acids as Ligands in the Vanadium Catalyzed Asymmetric Epoxidation of Allylic Alcohols by tert-Butyl Hydroperoxide," <i>Journal of the American Chemical Society</i> , 1997 , 99(6), 1990-1992.

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	A34	Murase, N. et al., "Chiral Vanadium-Based Catalysts for Asymmetric Epoxidation of Allylic Alcohols," <i>J. Org. Chem.</i> , 1999 , 64(2), 338-339.
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	A37	Tikhonov, A.Y. et al., "Synthesis and Inhibitory Effect on Platelet Aggregation and Antihypertensive Activity of 1-Hydroxy-2,5-dihydro-1H-imidazole-2-carboxylic Acid 3-Oxides, 1,3-Dihydroxyimidazolidine-2-carboxylic Acids, and 1,4-Dihydroxy-2,3-piperazinediones," <i>Arch. Pharm. Pharm. Med. Chem.</i> , 1999 , 332, 305-308.
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	A39	Wu, H.L. and Uang, B.J., "Asymmetric epoxidation of allylic alcohols catalyzed by new chiral vanadium(V) complexes," <i>Tetrahedron: Asymmetry</i> , 2002 , 13, 2625-28.

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